mixtures of aqueous vapour with any of the gases, according to which, each gaseous body is uniformly diffused throughout the whole space, its particles repelling those of its own kind, but exerting no pressure on the particles of any other kind. He considers the fact that a given portion of air has its volume expanded by the addition of aqueous vapour, as being of itself a sufficient refutation of that theory. The author then takes occasion to discuss the question, whether aqueous vapour exists in the atmosphere in the state of mechanical mixture or of chemical solution, and argues in favour of the latter view of the subject.

In the concluding section, the author enters at large into the investigation of the method of ascertaining heights by barometric observations, and gives various tables to be used for that purpose.

April 3, 1845.

The MARQUIS OF NORTHAMPTON, President, in the Chair.

'Αμόρφωτα, No. 2. "On the Epipolic Dispersion of Light; being a Supplement to a paper entitled 'On a case of Superficial Colour presented by a Homogeneous Liquid internally colourless.'" By Sir John Frederick William Herschel, Bart., F.R.S. &c.

The author inquires whether the peculiar coloured dispersion of white light intromitted into a solution of sulphate of quinine, is the result of an analysis of the incident light into two distinct species, or merely of a simple subdivision analogous to that which takes place in partial reflexion, as exemplified in the colours of thin plates. He endeavours to ascertain the laws which regulate this singular mode of dispersion, which for brevity he terms *epipolic*, on account of the proximity of the seat of dispersion to the intromitting surface of the fluid. It might have been expected that by passing the same incident beam successively through many such dispersive surfaces, the whole of the blue rays would at length be separated from it, and an orange, or red residual beam be left: but the author establishes, by numerous experiments, the general fact, that an *epipolical beam of light*, meaning thereby a beam which has been once transmitted through a quiniferous solution, and undergone its dispersing action, is incapable of farther undergoing epipolic dispersion.

There were only two liquids, out of all those examined by the author, namely oil of turpentine and pyroxylic spirit, which, when interposed in the incident beam, act like the solutions of quinine in preventing the formation of the blue film: and the only solid in which the author discovered a similar power of epipolic dispersion, is the green fluor of Alston Moor, and which by this action exhibits at its surface a fine deep blue colour.
